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ABSTRACT

The effects of a program designed to generate self-maintenance of resident living areas and increase self-initiated activities among older adults were investigated. Subjects (N=22) were rewarded with paper tokens which could be exchanged for personal items upon completion of cleaning and maintenance. They were observed as to the quantity and type of interactions with other residents. Results indicated that: (1) reinforcement increased social interaction among the residents; (2) staff-and-resident as well as resident-and-resident relationships improved; and (3) older adults exhibited greater self-reliance and independence. (Author/HLM)

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A Behavioral Approach To Self-Initiated Leisure-Time Activities And Living-Area Maintenance In Long-Term Care Facilities For The Elderly

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Historically, geriatric care has been based on a model suggesting that inappropriate behavior, decreasing intellectual functioning, and reduced skill levels are by-products of the aging process (Eisdorfer & Lawton, 1973; Jarvik, Eisdorfer, & Blum, 1972). Old age due to biological deterioration is too often viewed as a "sick" or "abnormal" state of life (e.g. Baltes & Zerbe, 1976), and old people are encouraged to fulfill the sick role as their legitimate social role (McDonald & Butler, 1974).

Hearing losses and visual deficiencies (Moore, 1968), decreasing muscular strength, muscular coordination, and reaction times (Charles, 1965; McClennan,

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***The order of authorship was randomized.

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1951; Peck, 1966), shorter attention spans (Tiven, 1971), and poorer immediate and delayed memory (Moore, 1968) have all been described as results of the aging process and, thus, are indicative of the focus of much of the literature on aging.

However, new emphases have been evident in gerontological research. The locus of control for degenerative trends has been at least partially transferred from the aging process itself to the environmental arrangements under which a person functions. It has been well documented that extremely deprived environments (Baltes & Lascomb, 1975; Gottesman, 1973; Labouvie, Hoyer, Baltes, & Baltes, 1974; Lawton & Nahemow, 1973) and, especially, institutionalization, hastens deterioration (Euster, 1971). In contrast to an entirely biological interpretation of deterioration, Hoyer (1973) writes:

> "Behavioral deficits in the elderly are not immutable, but are partially a function of environmental or experimental deficiencies which can be modified...since the maturational determinants of aging are especially not subject to direct manipulations by behavior scientists, social and psychological interventions must exert their influence through modification of the environmental determinants of behavior."

For example, verbal behavior (Hoyer, Kafer, Simpson, & Hoyer, 1974), work performance (Filer & O'Connel, 1962; 1964), exercise participation (Libb & Clements, 1969) walking (McDonald & Butler, 1974), and self-injurious behavior (Mishara, Robertson, & Kastenbaum, 1973) have all been altered through manipulations in the environment. Intervention strategies which attempt to elicit change through rearrangement of the environment (McClannahan & Risley, 1974) and to return a greater degree of control over the environment to the individual have been shown to produce active and skilled elderly people. For example, Rodin and Langer (1978) found that nursing home patients given a greater measure of environmental control showed increased interest in their surroundings and became more sociable and alert.

In this light the Senior Citizens Integration Project (SCIP) was designed

to generate self-maintenance of resident living areas and increased self-initiated activity. These behaviors were selected as initial targets for intervention, a) to decrease the amount of resident supervision required of staff members, thereby promoting independent functioning, and b) to generate available programming time for staff.

Setting

SCIP-II is one level of a three-level geriatric program operating currently at Spencer Hospital, Spencer, West Virginia. This level is designed to house 30 high functioning residents over the age of 60 who possess one or more medical problems. The problems typically are severe enough to prohibit discharge from the institution. Inasmuch as these individuals are likely to spend the remainder of their lives at Spencer, a major objective of SCIP-II is to enable residents to live as independently as possible within the institution, and to enhance their general "quality of life" (Noah, Brezinski, Atkinson, & Cavendish, 1976). In meeting these objectives, self-maintenance of living areas was chosen as the initial target of intervention; and, some months later, a program to increase the number of residents who would self-initiate their own leisure-time activities was designed.

SELF-MAINTENANCE OF LIVING AREAS PROGRAM

Method

Subjects. Twenty-two of the 30 individuals living on SCIP-II served as subjects for the self-maintenance of living areas program. Eight individuals were omitted for the following reasons: one was found to be more suitable for nursing home placement and so was transferred; four suffered broken limbs and, on the advice of medical staff, were exempt from the procedures; and three expired. Of the 22 subjects, 10 were male and 12 were female. Their ages ranged

from 60 to 88 years ($\bar{x}$ = 72.6).

Procedure. Living-area maintenance was divided into the categories of bed-making, clothing storage, furniture dusting and floor sweeping. Performance criteria within each category also were specified. If residents could perform all activities with a minimum of staff reminders, no further staff or resident attention would need to be concentrated on housekeeping activities. This would provide the opportunity for increased involvement in treatment programming.

Two weeks of baseline data were collected by psychiatric aides who simply recorded each morning whether the above-listed tasks were performed non-prompted to specifications. Prior to the baseline condition, these same aides participated in a two-hour training session which included instruction on program procedures, discussion of inclusionary and exclusionary examples, modeling, and role-playing. Feedback about adequacy of performance was provided. If, upon observation, the tasks were not completed, the aides completed the tasks without mention to the residents.

During the first week of intervention, aides contingently rewarded the subjects with paper tokens for completing the tasks. The residents were still awarded tokens for task completions requiring verbal and/or physical prompts, thus rewarding them for learning to correct their errors. However, residents were instructed that twice as many tokens could be earned for completing the tasks without prompts. The tokens were then exchangeable for consumable items such as candy, coffee, and cigarettes, and for such non-consumables as make-up and toiletry items. At the initiation of intervention, consumable supplies were placed on a cart which was wheeled from room to room during observations. To establish an association between the tokens and desirable items, any tokens earned were immediately exchangeable for items from the cart. During the second week of intervention, tokens were still exchanged immediately after they were dispensed,

but the cart was stationed just outside the door of the token store. This procedure was implemented to generate spending tokens at the store. Beginning with the third week of intervention, the cart remained stationed just outside the token store, but was only "open for business" at 9:30 a.m. (two hours after the residents received tokens) and at 6:00 p.m. (10 hours after receiving tokens). These same store hours were maintained throughout the study. Beginning with the fourth week of intervention, the cart was no longer used. Instead, the residents were spending tokens in the token store, a concept which, at one time, was completely alien to them. This procedure was continued for 15 additional weeks.

At the end of the 19th week, token reinforcement was discontinued. The aides followed the same procedures as during the token reinforcement condition but delivered neither the tokens nor the items from the token store.

Observers were checked for disagreements in recording the target behaviors against each other and against one of the authors. The definitions of the target behaviors proved reliable, as observers have maintained virtually 100% agreement ($\frac{\text{agreements}}{\text{agreements + disagreements}} \times 100$) throughout all sampling periods.

Results and Discussion

The introduction of tangible reinforcement to the 22 elderly subjects caused a dramatic increase in the frequency of occurrence of the target behaviors. Non-prompted bedmaking increased by 79% over baseline; floor sweeping increased by 416%; furniture dusting showed an increase of 406%; and clothing storage increased by 38%. Further, data indicate no decreases in responding after the withdrawal of tokens. In fact, slight increases occurred in each category after the withdrawal of token reinforcement.

The 17 weeks of the token reinforcement period were associated, overall, with a marked increase in the frequency of occurrences of room-maintenance behavior.

Because there were no resultant decreases in responding following withdrawal of tokens, however, one can doubt the existence of a causal relationship between the increases in room-maintenance behavior and the introduction of tokens.

The reasons for maintenance of these behaviors following termination of tangible reinforcement remain unclear. It is possible that the behaviors developed through token reinforcement have, after the withdrawal of tokens, come under the control of reinforcing consequences drawn directly from the activities. A more plausible explanation is that the token economy program somehow affected the way in which staff interacted with residents. In other words, once the tokens were withdrawn, the staff continued to consequate desirable behaviors in much the same way as before, but did not deliver tokens. This same view on response maintenance and transfer of learning is held by Kazdin (1975d):

> "Even though tokens are withdrawn, staff are utilizing contingent reinforcements, prompting, and executing other procedures developed in their repertories during the token program."

It is, therefore, the contention of the authors that it was not the tokens that caused such dramatic changes in the behavior of these elderly individuals, but, rather, that it was the pattern of staff interaction.

Further support of a socialization explanation has been stated by Baltes and Barton (1977). They assert that reinforcers which are powerful in controlling the behavior of younger, healthier, and more competitive members of our society may, indeed, not be reinforcing for the older adult. For example, money may be an extremely potent reinforcer for the young and middle-aged adult, whereas social reinforcers may be preferred by the older individual. This may be interpreted to imply that the social attention of the staff may be the most powerful behavioral control mechanism commanded by the institution.

Assuming this, it would appear by the data that the implementation of a token economy program is a valuable technique for training staff to effectively

elicit and consequate desirable behaviors in elderly populations. This type of "in vivo" training could possibly serve to correct the all too prevalent situations in long-term care facilities for the elderly where dependent behaviors are maintained by staff attention and independent behaviors are often ignored or even punished.

SELF-INITIATION OF LEISURE ACTIVITIES PROGRAM

Method

Subjects. The 30 residents living on SCIP-II served as subjects. Of the 30, 22 participated in the living-area maintenance program. The average age for the 13 males and 17 females was 71.1 (range = 61-88 years).

Procedure. The goal of the leisure activities program was to increase and maintain resident participation in activities where the resident was actively interacting with the environment without assistance, prompts, or supervision from staff, thereby decreasing the resident's dependence upon staff.

Seven days of baseline data were collected by nine psychiatric aides and one recreation therapist following two 45-minute training sessions. These training sessions were similar to the one which took place during the self-maintenance of living area program in that they included instruction on program procedures, modeling, and discussion of inclusionary examples (e.g. playing checkers, conversing with another resident, quilting, reading, etc.) and exclusionary examples (e.g. participating in a structured activity being supervised by a staff member).

Using a non-randomized variable interval 30-minute schedule, staff observed and described, on a pre-prepared data sheet, in what activity (if any) individual residents were engaging. Eleven observations were made each day during the times when structured activities were not held normally, or, during activities when total participation was not expected (e.g. bingo or arts & crafts, as opposed to exercises).

Alternating ends of the hallway for use as a starting point in making their observations, staff proceeded from one end of the unit to the other. For the first intervention condition, residents engaged in a constructive leisure-time activity (e.g. reading, sewing, playing games, etc.) at the time of the observation received reinforcement in the form of staff attention. The observer spent at least one minute with each resident observed engaging in a leisure activity. Residents not engaging in appropriate activities upon observation received no staff attention. Those residents inquiring about what the staff member was doing or about how to get that staff person to spend time with them were instructed as to what behaviors were necessary for reinforcement to occur.

The procedures for the second intervention condition were identical to the first, with the following exception: based on individual data gathered during the first intervention phase, four residents (two male and two female) were selected for special recognition. Because of their high activity levels, these individuals were inducted into a special "club". The objective of the members of this "club" was to draw other non-participatory residents into unsupervised leisure activities. These "club" members were told the names of those other residents who, based on individual data, rarely initiated leisure activities and who should be the targets of their objective. The resident prompters were contingently "reinforced" with social praise on a delayed basis (range 2 hour - 7 hour delay).

Reliability was assessed by checking observers against each other and against one of the authors for discrepancy in recording the target behaviors. Little disagreement was noted, as a 95.8% rate of inter-observer reliability was obtained ($\frac{\text{agreements}}{\text{agreements + disagreements}} \times 100$).

Results and Discussion

The nine weeks of the first intervention condition produced an 18% increase in responding over baseline. During this intervention condition, an average of 17.5 residents engaged in self-initiated leisure activities on a daily basis. It appears that merely consequating desired behaviors with staff attention can effect some change in the lives of institutionalized elderly.

However, the greatest change occurred during the second intervention condition, when four of the more active subjects were "reinforced" for drawing other, less active subjects into unstructured, unsupervised leisure activities. This strategy resulted in a 44% increase in responding over baseline. During this phase, approximately 70% of the population of SCIP-II engaged, on a daily basis, in self-initiated leisure activities.

An analysis of individual subject data indicate that three separate categories of responding are readily discernible: those subjects with a low response rate during baseline who improved as a result of intervention; those subjects with a higher response rate during baseline who improved as a result of intervention; and those subjects with a low response rate during baseline who improved little or none as a result of intervention.

The successful outcome of the self-initiated leisure activity program lends validity to the idea that increasing the environmental control of the institutionalized elderly person lessens that person's dependence upon institutional staff (Rodin & Langer, 1978). Through this program the residents of SCIP-II were given a greater degree of environmental control. Not only did they have the freedom to choose whether or not to participate in structured, supervised, leisure activities, but they were given the freedom to choose to initiate activity, to choose the activity to initiate, to choose when to initiate the activity, and

to choose where to initiate the activity.

These procedures demonstrate the cost-effectiveness of using social reinforcement to promote the independence of the elderly, especially of those elderly living in institutional environments. Increased staff:resident interactions and increased resident:resident interactions were accomplished, as well as increased resident activity levels. Staff served not to prompt or supervise activities, but only to reinforce those residents who initiated their own activities and to reinforce those residents who prompted other, less active, residents to engage in unsupervised leisure activities.

Currently, the authors are expanding analyses to include other factors such as decreases in frequency, duration, and severity of resident medical difficulties, decreases in frequency of resident transfers to medical hospitals, etc. Though difficulties are anticipated in establishing cause-effect relationships, it may be possible to determine the relationship between the structuring of independent living situations and increases in the quality of life of the resident.

The notion of environmental control as a determiner of behavior has been well documented in other situations and for other populations (e.g., Rotter, 1954; Seligman,). So this notion is not limited to institutionalized geriatrics, although it is a population that is extremely amenable to this type of intervention. That such behavior can be generated with geriatric people is not the issue (Rodin & Langer, 1978). The issue is how one generates such behavior in very restrictive and resource-limited environments. The authors believe that the procedures cited above present one possible solution.

Summary

This paper presents two low-cost procedures for effectively increasing the activity level and self-sufficiency of the institutionalized elderly. The authors

feel that an important characteristic of these programs is their potential applicability to community settings, as well as to other institutional situations and populations.

The programs presented in this paper are still being implemented on SCIP-II, as are other, more individualized programs using staff attention as the major source of reinforcement. Wheel chair-bound residents are learning to walk under the contingencies of staff praise; by using contingent social reinforcers, speech is being re-established in a man who has not emitted a single word in 36 years; and personal grooming behavior is being maintained in a program using staff time as a reinforcer.

Another important point to be drawn from this paper is that agencies and institutions may be under-utilizing their non-professional staff as potentially powerful reinforcing agents and their clients or residents as prompters or, possibly, as reinforcing agents themselves. Programs struggling to be successful within a resource-limited environment may be overlooking one of the most valuable resources in their supply--that of staff attention as an effective social reinforcer.

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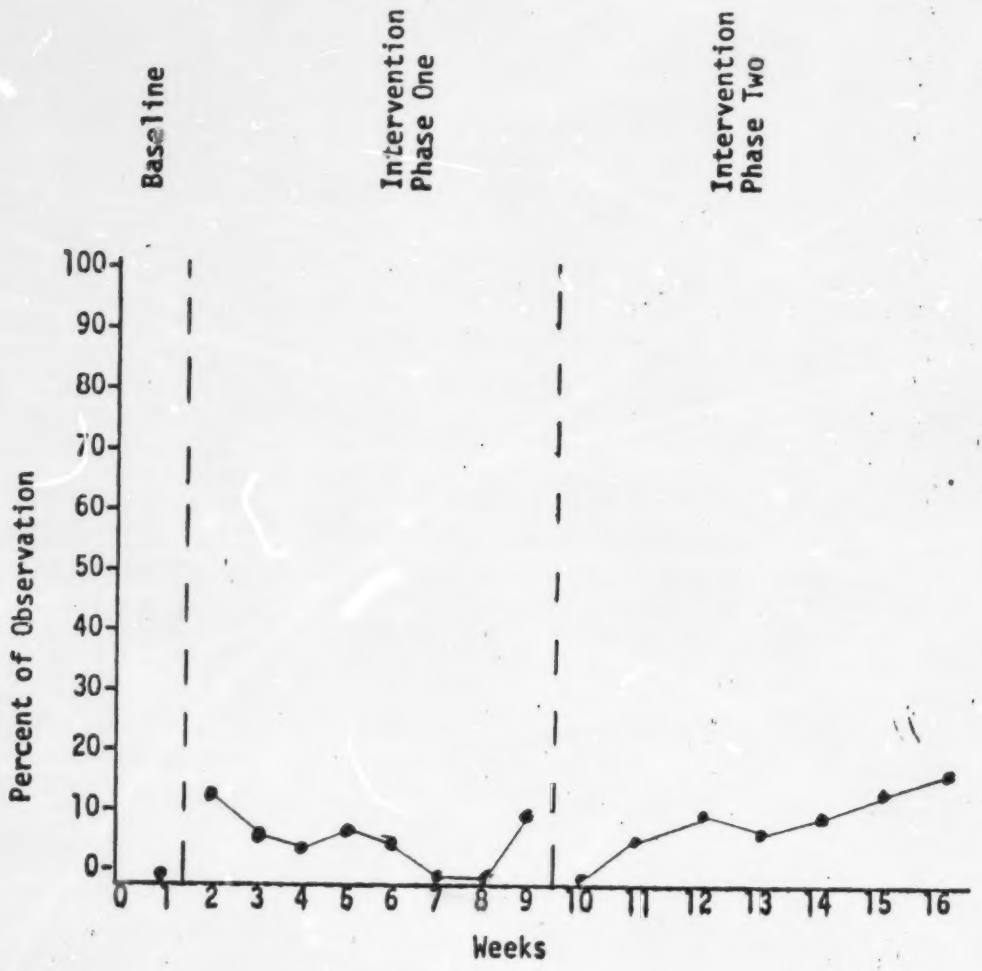


Figure 3 (Continued)

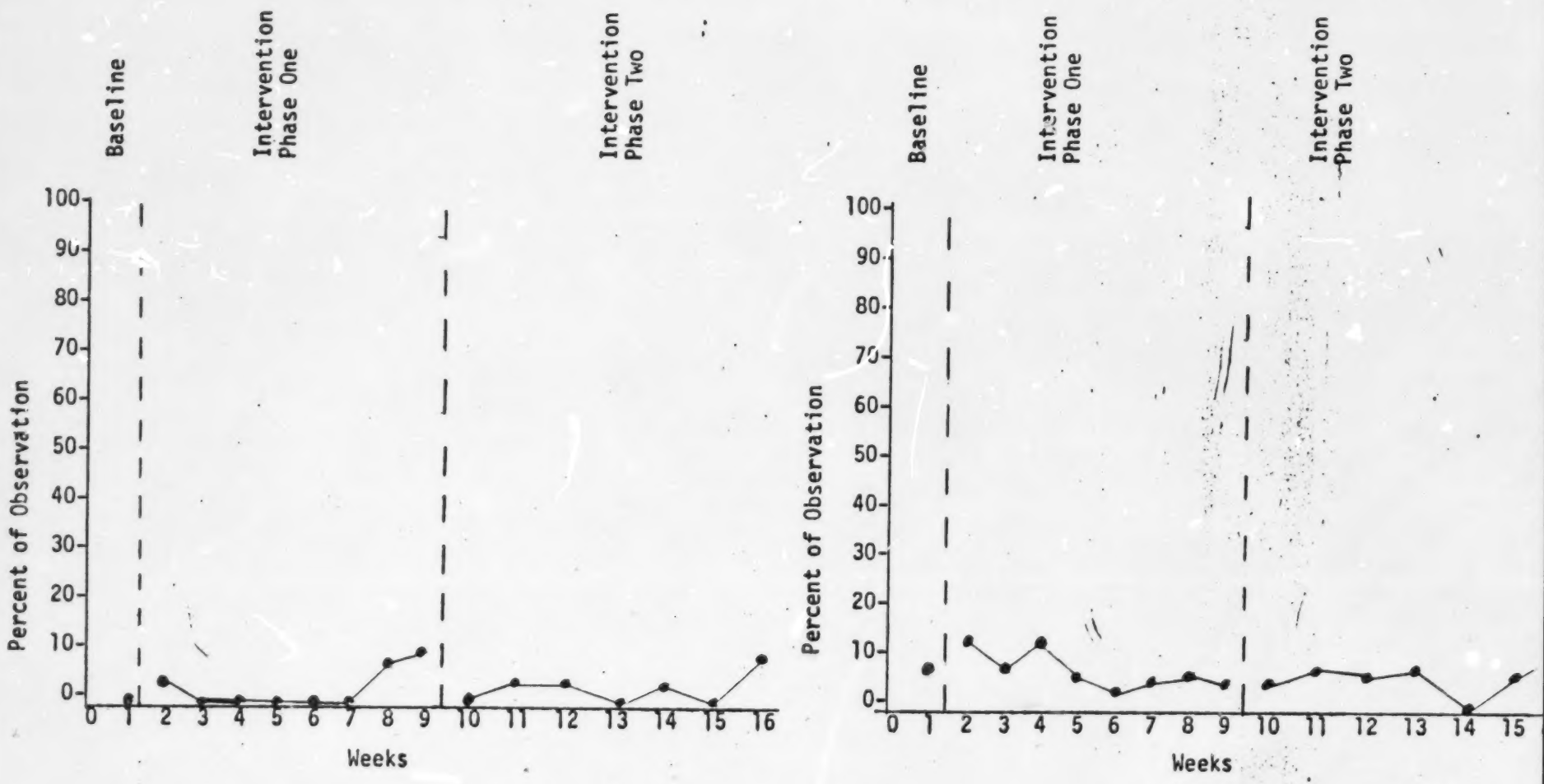
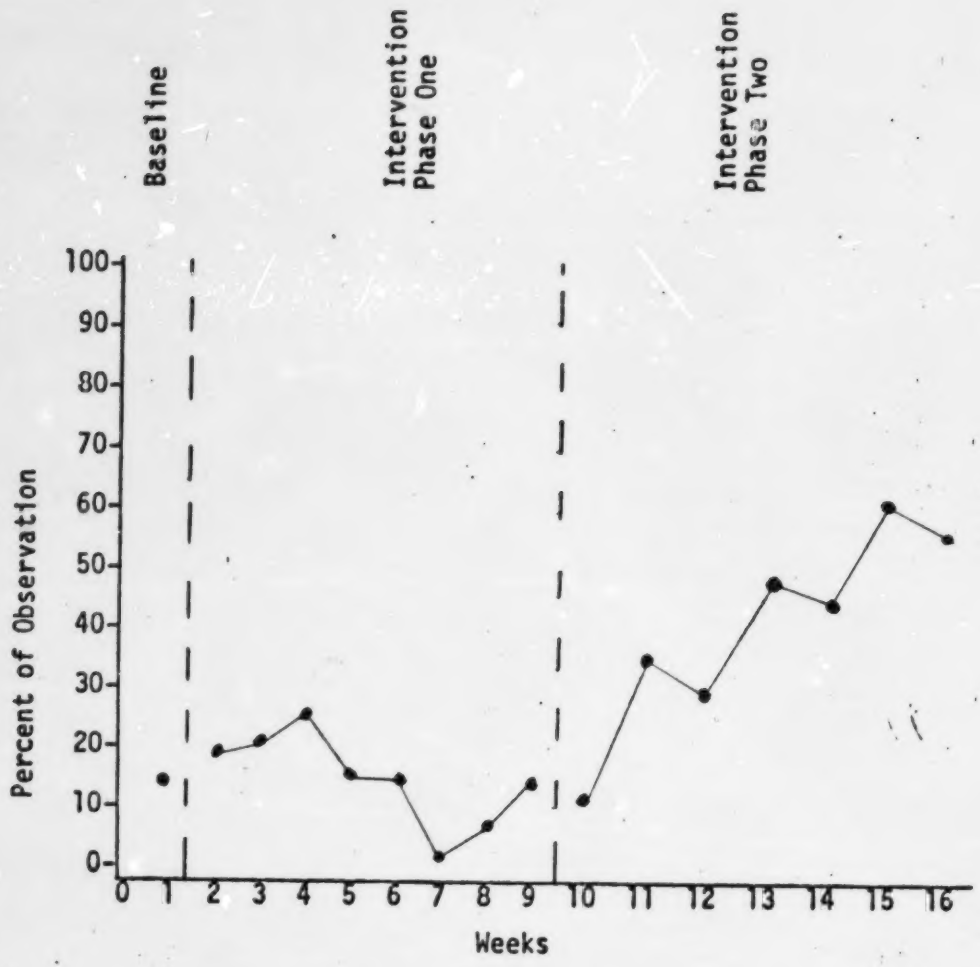


Fig. 3 REPRESENTATIVE RESIDENT DATA: NON-PARTICIPATING RESIDENTS



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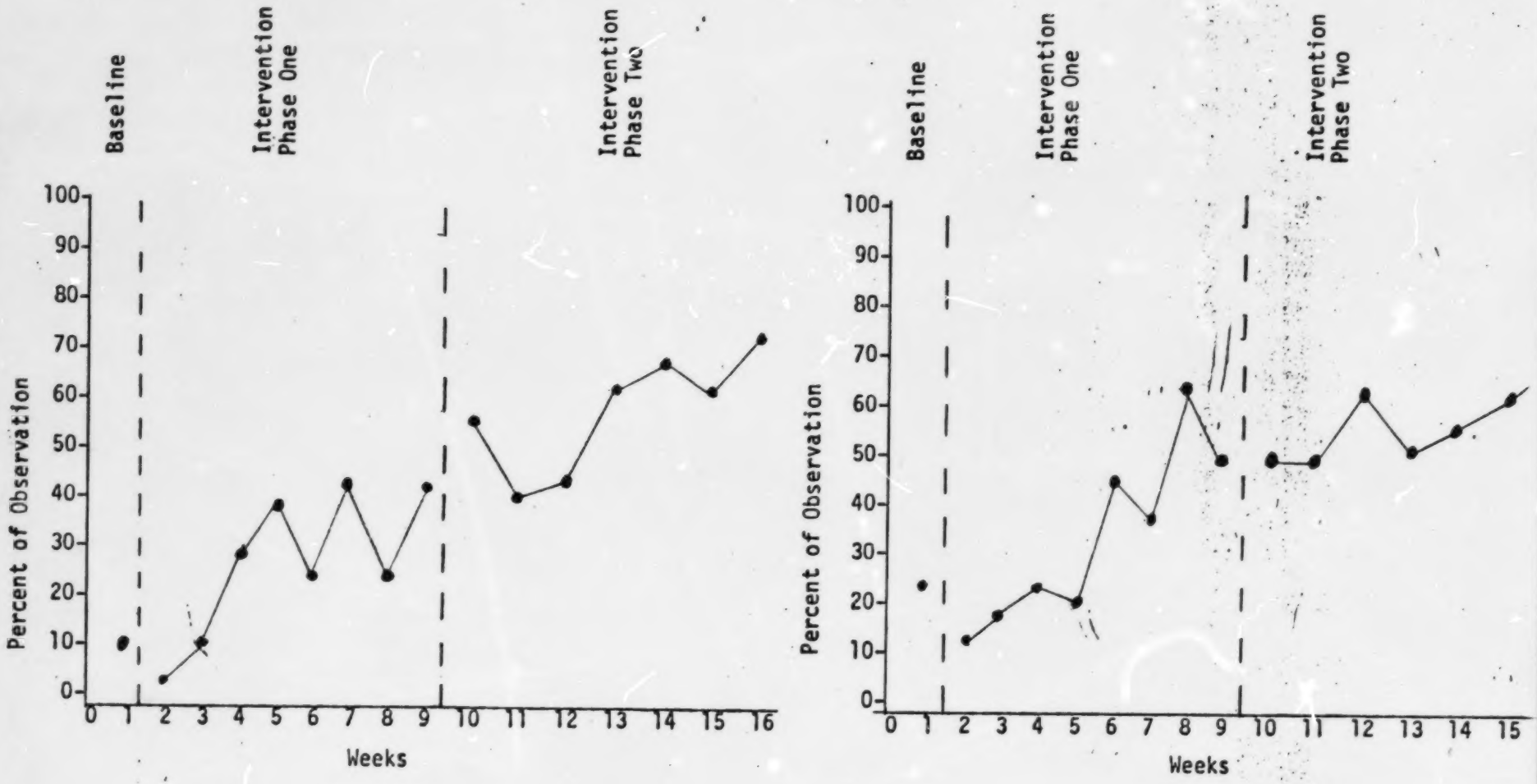
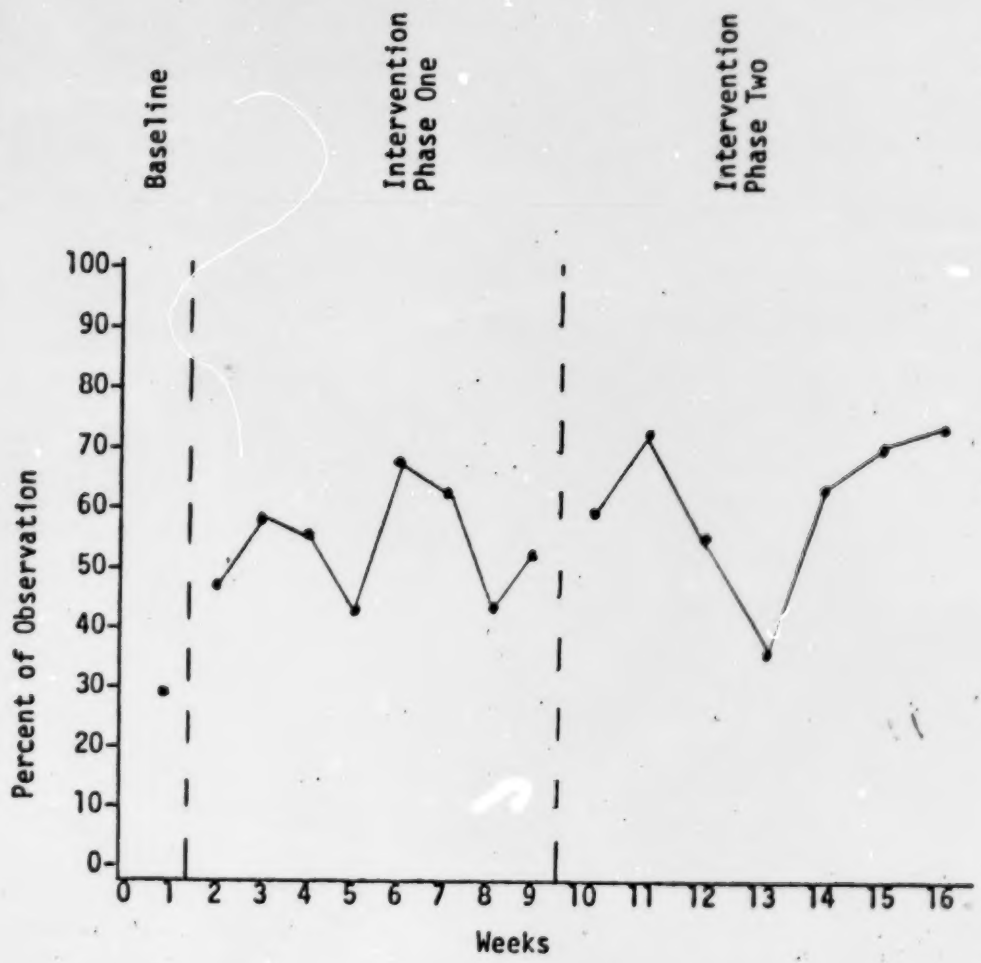


Fig. 2 REPRESENTATIVE RESIDENT DATA: INCREASED LEISURE ACTIVITY PARTICIPATION
(Residents Not Participating During Baseline)



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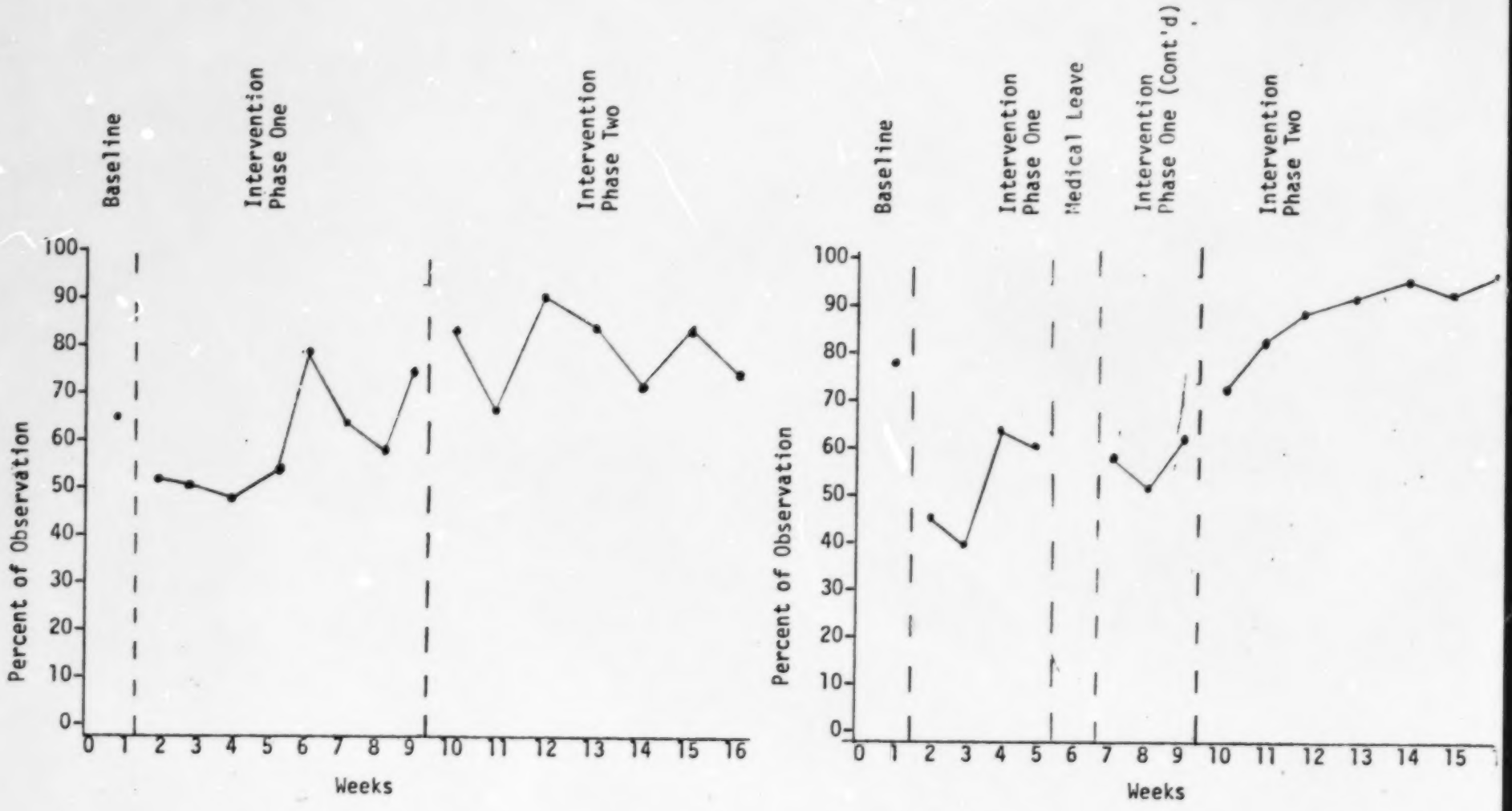

Fig. 1 REPRESENTATIVE RESIDENT DATA: INCREASED LEISURE ACTIVITY PARTICIPATION
(Residents Participating During Baseline)

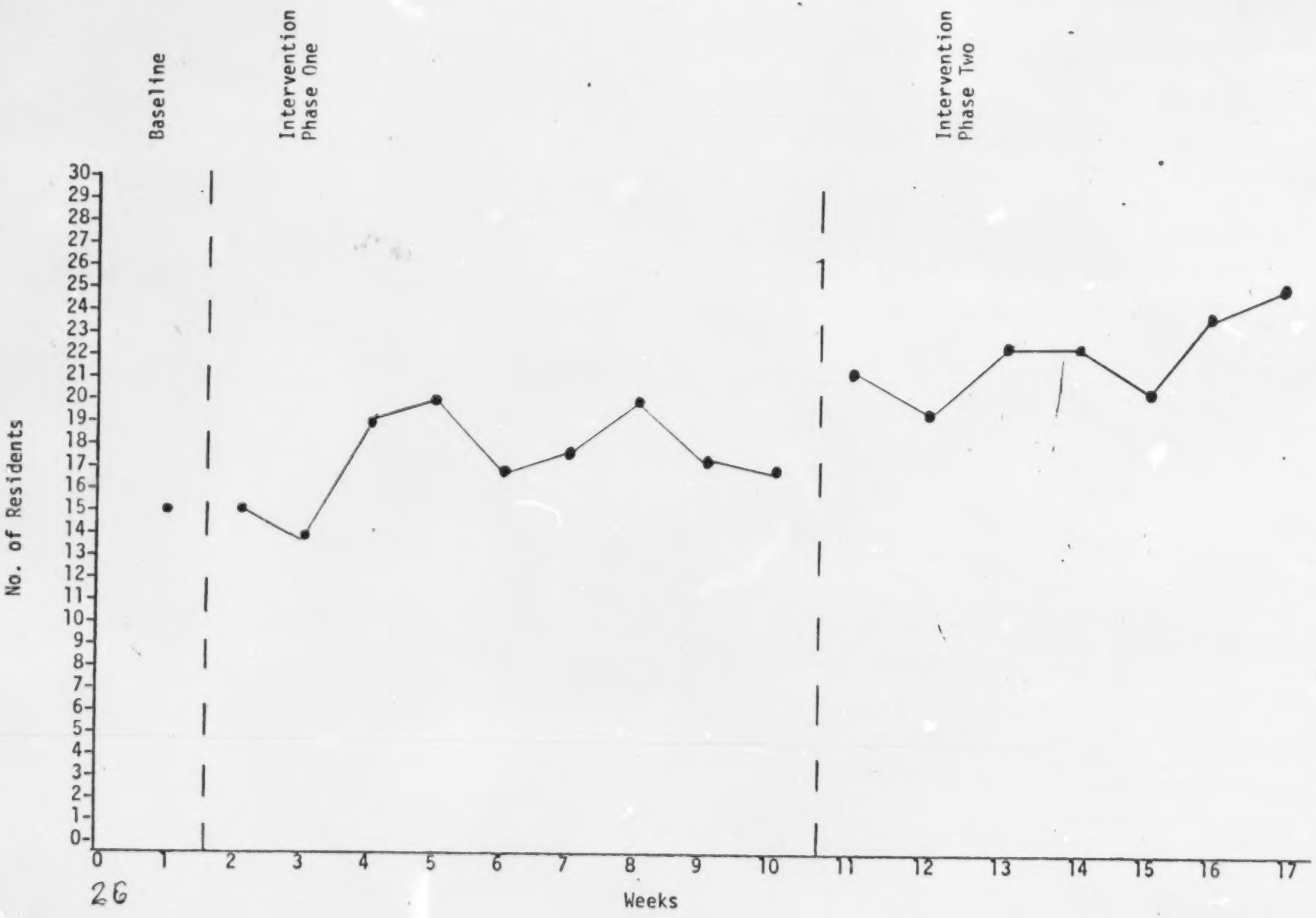

Fig. A: NUMBER OF RESIDENTS ENGAGING IN SELF-INITIATED LEISURE ACTIVITIES ON A DAILY BASIS